

REMARKS

1. Specification and Claim Objections

The Specification has been amended to insert the sequence identifiers requested by the Examiner.

With regard to the “Frigerio paper” referred to in paragraph 9(b) of the Office Action, the Examiner will note that a “References” section is provided at the end of the Specification in which references 3, 11, 12 and 15 are authored by Frigerio et al.

With regard to the underlined text noted by the Examiner in paragraph 9(c) of the Office Action, the Specification has been amended at the appropriate locations to either indicate that the underlining references synthetic tail pieces, or the underlining has been eliminated.

Claim 35 has been amended as suggested by the Examiner.

It is believed that these actions obviate the objections by the Examiner so that the objections should be withdrawn.

2. Claim Rejections – 35 U.S.C. § 112

The claims under examination have been rejected under 35 U.S.C. § 112, 2nd paragraph, for the various specific reasons identified in paragraph 11, subparagraphs (a)-(n) of the Office Action. The claims have been amended to address each and every one of the Examiner’s objections, without attempting to add any new matter. Claim 87 has been added to the application to recite the preferred aspects removed from claim 44, so the subject matter of claim 87 is fully supported by original claim 44.

In view of the above, reconsideration and withdrawal of the rejection are requested.

3. Written Description Rejection

Claims 1, 34-38, 40-44, 46, 48, 50, 52 and 82-86 have been rejected under 35 U.S.C. § 112, 1st paragraph, for allegedly failing to comply with the written description requirement. Reconsideration and withdrawal of the rejection are requested.

Applicants submit that the Examiner has made this rejection without providing any of the requisite analysis to support such a rejection, but instead has simply noted that the application covers a genus of peptides while only a few species are specifically described in the application, and the Examiner follows those short observations with merely the standard boilerplate Office Action language. Applicants submit that this is not a sufficient basis on which to reject Applicants' claims.

First of all, the claims under examination correspond in scope and language to the original filed claims, although some claim dependencies were modified to conform with U.S. patent practice. Thus, the claims under examination correspond in scope and kind to the original claims in the application. As such, "there is a strong presumption that an adequate written description of the claimed invention is present in the Specification as filed" (see "Guidelines for Examination of Patent Applications under 35 U.S.C. § 112, paragraph 1, "Written Description" requirement, Fed. Reg., Vol. 66, No. 4 (January 5, 2001), page 1105, middle column). Indeed, the "Guidelines for Examination" specifically note that "rejection of an original claim for lack of written description **should be rare**". *Ibid* (emphasis added). Applicants submit that the present application is not a "rare" case. Instead, there is a strong presumption that the present application provides written description support for the presently examined claims, so it is incumbent upon the Examiner to rebut that presumption with a clear and supported analysis.

Applicants submit that the Examiner has specifically failed to recognize the structure-function relationship described in the application and which well provides written description support for the scope of the present claims. As recited in paragraph (b) of, for example, claim 1, modification of the nucleotide sequence encoding the immunoglobulin heavy chain is

specifically performed in the C-terminus 18 amino acids. Further description of this modification is presented on pages 5-6 of the application and additional details are well set forth at, for example, pages 8-12 of the application. In the Office Action, the Examiner has not at all explained why these descriptions are not sufficient to provide written description support for the present claims.

Although Applicants submit that the Examiner has not met her burden for even asserting lack of written description support, Applicants provide further evidence of compliance with the written description requirement in the form of the enclosed declaration by Dr. Alessandro Vitale.

As the Examiner recognizes, the legal question under the written description requirement is whether the application conveys "with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention". In his declaration, Dr. Vitale asserts and explains why one skilled in the art reading the present application would believe that the inventor "had possession of the full scope of the invention as now claimed". (See paragraph 4 of the enclosed Declaration).

In summary, Applicants submit that there is a strong presumption that the present claims comply with the written description requirement, so the Examiner has a heavy burden to explain, with particularity, why the present claims do not satisfy the written description requirement. In addition, Applicants have submitted evidence to explain why one skilled in the art would have understood from reading the present application that the inventors were in possession of the full scope of the claimed invention as of the filing date. In the face of this evidence, the Examiner can only maintain the rejection if she provides some counter evidence and a well reasoned explanation for why the present claims are not sufficiently supported by a written description. If the Examiner merely asserts her opinion about what the application would convey to one skilled in the art, then the Examiner is requested to explain how she qualifies as one skilled in the art and why her opinion should be accepted instead of Dr. Vitale's explanation.

In view of the above, Applicants submit that the Examiner's written description rejection should be withdrawn.

4. Enablement Rejection

Claims 1, 34-38, 40-44, 46, 48, 50, 52 and 82-86 have been rejected under 35 U.S.C. § 112, 1st paragraph, for alleged lack of enablement. This rejection is respectfully traversed. Reconsideration and withdrawal thereof are requested.

The Examiner essentially argues that the Specification does not provide sufficient guidance to permit one skilled in the art to practice the full scope of the present claims and that "one skilled in the art would be forced into undue experimentation in order to practice the broadly claimed invention" (see the top of page 16 of the Office Action). Applicants submit that one skilled in the art would indeed be able to practice the full scope of Applicants' invention utilizing the teachings in the Specification and the knowledge of one of ordinary skill in the art, without undue experimentation. In support thereof, Applicants again direct attention to the enclosed declaration by Dr. Alessandro Vitale who specifically declares that "one skilled in the art as of the filing date of the present application (May 18, 2005) would have been able to repeat the claimed invention across its full breadth using the teaching of the application as filed in combination with his common general knowledge" (see the first sentence in the 2nd paragraph of section 4 of the declaration.). Dr. Vitale specifically explains why such a person of ordinary skill in the art (specifically one with the skills of an undergraduate biology student) would be able to generate mutations in the C-terminus 18 amino acids of an immunoglobulin and then test whether the mutated immunoglobulin possessed a vacuolar targeting signal. Although some experimentation might be necessary for one skilled in the art to practice the full scope of the invention, the required experimentation would not be "undue", and as established by the declaration evidence, would be well within the skill of one skilled in the art of the present invention.

Accordingly, reconsideration and withdrawal of the rejection are requested.

5. Claim Rejections – 35 U.S.C. § 103

The claims have been rejected under 35 U.S.C. § 103 (a) over *Frigerio et al.* in view of *Vitale* and *Raikhel, Koide et al.* and *Matsuoka et al.* This rejection is respectfully traversed. Reconsideration and withdrawal are requested.

Applicants submit that the present invention would not have been *prima facie* obvious at the time of the present invention, substantially for the reasons set forth in the enclosed declarations by Dr. Alessandro Vitale and Dr. Lorenzo Frigerio.

Dr. Vitale (a co-author of the Frigerio and Vitale publication) specifically explains why a person skilled in the art would not even have combined the teachings of Frigerio with those of Vitale, Koide or Matsuoka (see page 3 of the declaration). Dr. Frigerio provides similar explanation in paragraph 9 of his declaration. If those skilled in the art would not have even combined the teachings of the references cited by the Examiner, then the present invention cannot even properly even be considered to be *prima facie* obvious over those references.

Both Dr. Vitale and Dr. Frigerio explain in detail why a person skilled in the art would not have expected a mammalian protein to possess a targeting signal which can be recognized by the secretion machinery of a plant. In fact, Dr. Vitale explains why the teachings of the *Frigerio et al.* publication even show why one skilled in the art did not know whether a targeting signal even existed (see the paragraphs bridging pages 2 and 3 of the Vitale declaration).

As explained by Dr. Frigerio on page 8 of his declaration, his research which led to the present invention began by considering the identification of whether saturation of the secretion machinery is responsible for a portion of the protein going to the vacuole. It was only after eliminating this possibility and a second possibility that the present inventors began to consider whether they could identify a targeting sequence. But, at the time of the present invention, one skilled in the art would not have expected a mammalian protein to possess a targeting signal which could be recognized by the secretion machinery of a plant. It is only by means of classic hindsight review of the prior art that the Examiner could come to the conclusion that “one skilled

in the art could have reasonably generated modified heavy chains based on the cumulative information about protein secretion in plants to obtain the instant claimed method”.

Stated another way, if it would have been obvious for one skilled in the art to look for a cryptic signal in a mammalian protein which allows them to be sorted to the vacuole in plants, then why did the present inventors consider this the least likely approach? The reason is because it was not obvious at the time of the present invention to those skilled in the art. It only becomes “obvious” after reviewing the Applicants’ Specification and then combining teachings in prior publications which one skilled in the art would not have combined, but for hindsight reasoning of the type utilized by the Examiner.

Accordingly, Applicants submit that the present invention is not *prima facie* obvious over the cited references, so the rejection of the claim should be withdrawn.

Applicants submit that the rejections of the claims have been obviated by claim amendments and/or by means of declaration evidence to rebut the Examiner’s reasoning. Applicants submit that the claims, therefore, should be allowed.

Pursuant to 37 C.F.R. §§ 1.17 and 1.136(a), Applicant(s) respectfully petition(s) for a two (2) month extension of time for filing a reply in connection with the present application, and the required fee of \$230.00 is attached hereto.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Leonard R. Svensson Reg. No. 30,330 at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

Application No. 10/535,433
Amendment dated October 26, 2007
Reply to Office Action of June 21, 2007

Docket No.: 1009-0118PUS1

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37.C.F.R. §§1.16 or 1.14; particularly, extension of time fees.

Dated: October 31, 2007

Respectfully submitted,

By 

Leonard R. Svensson

Registration No.: 30,330

BIRCH, STEWART, KOLASCH & BIRCH, LLP

12770 High Bluff Drive

Suite 260

San Diego, California 92130

(858) 792-8855

Attorney for Applicant